

SEQUENCE LISTING

<110> Napier, Johnathan A.

<120> Polyunsaturated Fatty Acid (PUFA) Elongase from *Caenorhabditis elegans*

<130> 76/7

<140> PCT/GB00/01035

<141> 2000-03-20

<160> 22

<170> PatentIn Ver. 2.1

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<213> *C. elegans*

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825
DNA
C. elegans

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846
DNA
C. elegans

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13
866
DNA
C. elegans

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Gln Lys Tyr Trp Tyr His Ser Ile Thr Ile Ser Val Leu Tyr Phe Ile
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 Ile Ile Ala Thr Leu Arg Phe Ser Ile Asp Pro Leu Arg Ser Leu Tyr
 100 105 110
 Ala Glu Gly Phe Tyr Lys Thr Leu Cys Tyr Ser Cys Asn Pro Thr Asp
 115 120 125
 Val Ala Ala Phe Trp Ser Phe Ala Phe Ala Leu Ser Lys Ile Val Glu
 130 135 140
 Leu Gly Asp Thr Met Phe Ile Ile Leu Arg Lys Arg Pro Leu Ile Phe
 145 150 155 160
 Leu His Tyr Tyr His His Ala Ala Val Leu Ile Tyr Thr Val His Ser
 165 170 175
 Gly Ala Glu His Thr Ala Ala Gly Arg Phe Tyr Ile Leu Met Asn Tyr
 180 185 190
 Phe Ala His Ser Leu Met Tyr Thr Tyr Tyr Thr Val Ser Ala Met Gly
 195 200 205
 Tyr Arg Leu Pro Lys Trp Val Ser Met Thr Val Thr Thr Val Gln Thr
 210 215 220
 Thr Gln Met Leu Ala Gly Val Gly Ile Thr Trp Met Val Tyr Lys Val
 225 230 235 240
 Lys Thr Glu Tyr Lys Leu Pro Cys Gln Gln Ser Val Ala Asn Leu Tyr
 245 250 255
 Leu Ala Phe Val Ile Tyr Val Thr Phe Ala Ile Leu Phe Ile Gln Phe
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 Lys Asn Glu
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 <213> C. elegans

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Val Ala Val Ile Phe Thr Gly Lys Lys Val Val Leu Ile Tyr Lys Lys
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Ser Arg Val Ile Thr Phe Glu Ser Ser Leu Gln Asn Ala Ile Lys Asn
 65 70 75 80

Arg Asn Arg Lys Ser Leu Asn Ser Ser Gln Met Phe Gln Ile Met Glu
 85 90 95

Lys Tyr Lys Pro Phe Gln Leu Asp Thr Pro Leu Phe Val Trp Asn Ser
 100 105 110

Phe Leu Ala Ile Phe Ser Ile Leu Gly Phe Leu Arg Met Thr Pro Glu
 115 120 125

Phe Val Trp Ser Trp Ser Ala Glu Gly Asn Ser Phe Lys Tyr Ser Ile
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Cys His Ser Ser Tyr Ala Gln Gly Val Thr Gly Phe Trp Thr Glu Gln
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Phe Ala Met Ser Lys Leu Phe Glu Leu Ile Asp Thr Ile Phe Ile Val
 165 170 175

Leu Arg Lys Arg Pro Leu Ile Phe Leu His Trp Tyr His His Val Thr
 180 185 190

Val Met Ile Tyr Thr Trp His Ala Tyr Lys Asp His Thr Ala Ser Gly
 195 200 205

Arg Trp Phe Ile Trp Met Asn Tyr Gly Val His Ala Leu Met Tyr Ser
 210 215 220

Tyr Tyr Ala Leu Arg Ser Leu Lys Phe Arg Leu Pro Lys Gln Met Ala
 225 230 235 240

Met Val Val Thr Thr Leu Gln Leu Ala Gln Met Val Met Gly Val Ile
 245 250 255

Ile Gly Val Thr Val Tyr Arg Ile Lys Ser Ser Gly Glu Tyr Cys Gln
 260 265 270

Gln Thr Trp Asp Asn Leu Gly Leu Cys Phe Gly Val Tyr Phe Thr Tyr
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<213> C. elegans

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Val Pro Leu Ser Tyr Lys Ile Met Ile Gly Tyr Leu Val Thr Ile Tyr
35 40 45

Phe Gly Gln Lys Leu Met Ala His Arg Lys Pro Phe Asp Leu Gln Asn
50 55 60

Thr Leu Ala Leu Trp Asn Phe Gly Phe Ser Leu Phe Ser Gly Ile Ala
65 70 75 80

Ala Tyr Lys Leu Ile Pro Glu Leu Phe Gly Val Phe Met Lys Asp Gly
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Gly Leu Glu Gly Phe Ser Ala Lys Leu Ala Val Gly Tyr Ile Ala Thr
35 40 45
Ile Phe Gly Leu Lys Tyr Tyr Met Lys Asp Arg Lys Ala Phe Asp Leu
50 55 60
Ser Thr Pro Leu Asn Ile Trp Asn Gly Ile Leu Ser Thr Phe Ser Leu

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Ser Thr Ser Gly Tyr Trp Ile Phe Leu Trp Val Ile Ser Lys Ile Pro			
115	120		125
Glu Leu Leu Asp Thr Val Phe Ile Val Leu Arg Lys Arg Pro Leu Ile			
130	135		140
Phe Met His Trp Tyr His His Ala Leu Thr Gly Tyr Tyr Ala Leu Val			
145	150		160
Cys Tyr His Glu Asp Ala Val His Met Val Trp Val Val Trp Met Asn			
165	170		175
Tyr Ile Ile His Ala Phe Met Tyr Gly Tyr Tyr Leu Leu Lys Ser Leu			
180	185		190
Lys Val Pro Ile Pro Pro Ser Val Ala Gln Ala Ile Thr Thr Ser Gln			
195	200		205
Met Val Gln Phe Ala Val Ala Ile Phe Ala Gln Val His Val Ser Tyr			
210	215		220
Lys His Tyr Val Glu Gly Val Glu Gly Leu Ala Tyr Ser Phe Arg Gly			
225	230		240
Thr Ala Ile Gly Phe Phe Met Leu Thr Thr Tyr Phe Tyr Leu Trp Ile			
245	250		255
Gln Phe Tyr Lys Glu His Tyr Leu Lys Asn Gly Gly Lys Tyr Asn			
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<213> *C. elegans*

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 Ala Val Met Thr Asn Arg Lys Pro Phe Asp Leu Thr Gly Pro Leu Asn
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 65 70 75 80
 Thr Thr Phe Gly Leu Leu His Glu Phe Phe Ser Arg Gly Phe Phe Glu
 85 90 95
 Ser Tyr Ile His Ile Gly Asp Phe Tyr Asn Gly Leu Ser Gly Met Phe
 100 105 110
 Thr Trp Leu Phe Val Leu Ser Lys Val Ala Glu Phe Gly Asp Thr Leu
 115 120 125
 Phe Ile Ile Leu Arg Lys Lys Pro Leu Met Phe Leu His Trp Tyr His
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 His Val Leu Thr Met Asn Tyr Ala Phe Met Ser Phe Glu Ala Asn Leu
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 Gly Phe Asn Thr Trp Ile Thr Trp Met Asn Phe Ser Val His Ser Ile
 165 170 175
 Met Tyr Gly Tyr Tyr Met Leu Arg Ser Phe Gly Val Lys Val Pro Ala
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 Trp Ile Ala Lys Asn Ile Thr Thr Met Gln Ile Leu Gln Phe Val Ile
 195 200 205
 Thr His Phe Ile Leu Phe His Val Gly Tyr Leu Ala Val Thr Gly Gln
 210 215 220
 Ser Val Asp Ser Thr Pro Gly Tyr Trp Phe Cys Leu Leu Met Glu
 225 230 235 240
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 260 265 270
 Ile Glu

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 <213> C. elegans

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 35 40 45

 Gln Asp Glu Val Phe Pro His Ile Arg Ala Arg Arg Phe Ile Gln Glu
 50 55 60

 His Phe Gly Leu Phe Val Gln Met Ala Ile Ala Tyr Val Ile Leu Val
 65 70 75 80

 Phe Ser Ile Lys Arg Phe Met Arg Asp Arg Glu Pro Phe Gln Leu Thr
 85 90 95

 Thr Ala Leu Arg Leu Trp Asn Phe Phe Leu Ser Val Phe Ser Ile Tyr
 100 105 110

 Gly Ser Trp Thr Met Phe Pro Phe Met Val Gln Gln Ile Arg Leu Tyr
 115 120 125

 Gly Leu Tyr Gly Cys Gly Cys Glu Ala Leu Ser Asn Leu Pro Ser Gln
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 145 150 155 160

 Val Asp Thr Phe Phe Leu Val Leu Arg Lys Lys Pro Leu Ile Phe Leu
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 His Trp Tyr His His Met Ala Thr Phe Val Phe Phe Cys Ser Asn Tyr
 180 185 190

 Pro Thr Pro Ser Ser Gln Ser Arg Val Gly Val Ile Val Asn Leu Phe
 195 200 205

 Val His Ala Phe Met Tyr Pro Tyr Tyr Phe Thr Arg Ser Met Asn Ile
 210 215 220

 Lys Val Pro Ala Lys Ile Ser Met Ala Val Thr Val Leu Gln Leu Thr
 225 230 235 240

 Gln Phe Met Cys Phe Ile Tyr Gly Cys Thr Leu Met Tyr Tyr Ser Leu
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<210> 21
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<212> PRT
<213> C. elegans

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35 40 45
Gln Ala Ser Ile Leu Tyr Met Val Val Val Phe Gly Thr Lys Trp Phe
50 55 60
Met Arg Asn Arg Gln Pro Phe Gln Leu Thr Ile Pro Leu Asn Ile Trp
65 70 75 80
Asn Phe Ile Leu Ala Ala Phe Ser Ile Ala Gly Ala Val Lys Met Thr
85 90 95
Pro Glu Phe Phe Gly Thr Ile Ala Asn Lys Gly Ile Val Ala Ser Tyr
100 105 110
Cys Lys Val Phe Asp Phe Thr Lys Gly Glu Asn Gly Tyr Trp Val Trp
115 120 125
Leu Phe Met Ala Ser Lys Leu Phe Glu Leu Val Asp Thr Ile Phe Leu
130 135 140
Val Leu Arg Lys Arg Pro Leu Met Phe Leu His Trp Tyr His His Ile
145 150 155 160
Leu Thr Met Ile Tyr Ala Trp Tyr Ser His Pro Leu Thr Pro Gly Phe
165 170 175
Asn Arg Tyr Gly Ile Tyr Leu Asn Phe Val Val His Ala Phe Met Tyr
180 185 190
Ser Tyr Tyr Phe Leu Arg Ser Met Lys Ile Arg Val Pro Gly Phe Ile
195 200 205
Ala Gln Ala Ile Thr Ser Leu Gln Ile Val Gln Phe Ile Ile Ser Cys
210 215 220
Ala Val Leu Ala His Leu Gly Tyr Leu Met His Phe Thr Asn Ala Asn
225 230 235 240
Cys Asp Phe Glu Pro Ser Val Phe Lys Leu Ala Val Phe Met Asp Thr
245 250 255

Thr Tyr Leu Ala Leu Phe Val Asn Phe Phe Leu Gln Ser Tyr Val Leu
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<213> C. elegans

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Met Ser Ala Glu Val Ser Glu Arg Phe Lys Val Trp Thr Gly Asn Asn
1 5 10 15

Glu Thr Ile Ile Tyr Ser Pro Phe Glu Tyr Asp Ser Thr Leu Leu Ile
20 25 30

Glu Ser Cys Arg Cys Thr Tyr Gln Leu Leu Ile Leu Arg Gln Ile
35 40 45

Tyr Tyr Arg Asp Ile Trp Ser His Gly Asn Leu Lys Ala Cys Asp Xaa
50 55 60

Leu Leu Leu Ala Trp Asn Gly Phe Leu Ala Val Phe Ser Ile Met Gly
65 70 75 80

Thr Trp Arg Phe Gly Ile Glu Phe Tyr Asp Ala Val Phe Arg Xaa Gly
85 90 95

Phe Ile Xaa Ser Ile Cys Leu Ala Val Asn Pro Arg Ser Pro Ser Ala
100 105 110

Phe Trp Ala Cys Met Phe Ala Leu Ser Lys Ile Ala Glu Phe Gly Asp
115 120 125

Thr Met Phe Leu Val Leu Arg Lys Arg Pro Val Ile Phe Leu His Trp
130 135 140

Tyr His His Ala Val Val Leu Ile Leu Ser Trp His Ala Ala Ile Glu
145 150 155 160

Leu Thr Ala Pro Gly Arg Trp Phe Ile Phe Met Asn Tyr Leu Val His
165 170 175

Ser Ile Met Tyr Thr Tyr Tyr Ala Ile Thr Ser Ile Gly Tyr Arg Xaa
180 185 190

Pro Lys Ile Val Ser Met Thr Val Thr Phe Leu Gln Thr Leu Gln Met
195 200 205

Leu Ile Gly Val Ser Ile Ser Cys Ile Val Leu Tyr Leu Lys Leu Asn
210 215 220

Gly Glu Met Cys Gln Gln Ser Tyr Asp Asn Leu Ala Leu Ser Phe Gly
225 230 235 240

Ile Tyr Ala Ser Phe Leu Val Leu Ser Ser Phe Phe Asn Asn Ala Tyr
245 250 255

Leu Val Lys Lys Asp Lys Pro Asp Val Lys Lys Asp
260 265

SECRET